

ADOPTED: 22 March 2023

doi: 10.2903/j.efsa.2023.7967

Flavouring Group Evaluation 217 Revision 3 (FGE.217Rev3): consideration of genotoxic potential for α,β -unsaturated ketones and precursors from chemical subgroup 4.1 of FGE.19: lactones

EFSA Panel on Food Additives and Flavourings (FAF),

Maged Younes, Gabriele Aquilina, Laurence Castle, Gisela Degen, Karl-Heinz Engel,
Paul J Fowler, Maria José Frutos Fernandez, Peter Fürst, Ursula Gundert-Remy, Rainer Gürtler,
Trine Husøy, Melania Manco, Peter Moldeus, Sabina Passamonti, Romina Shah,
Ine Waalkens-Berendsen, Matthew Wright, Romualdo Benigni, Claudia Bolognesi,
Kevin Chipman, Eugenia Cordelli, Maria Carfi and Wim Mennes

Abstract

The Panel on Food Additives and Flavourings of the European Food Safety Authority was requested to evaluate the genotoxic potential of four flavouring substances [FL-no: 10.023, 10.030, 10.057 and 13.012] from subgroup 4.1 of FGE.19. For three of these substances [FL-no: 10.023, 10.030 and 13.012], the concern for genotoxicity has been ruled out in previous revisions of Flavouring Group Evaluation 217 (FGE.217). However, in FGE.217Rev2, a concern for genotoxicity could not be ruled out for 3a,4,5,7a-tetrahydro-3,6-dimethylbenzofuran-2(3H)-one [FL-no: 10.057]. After publication of FGE.217Rev2, industry provided additional genotoxicity studies for [FL-no: 10.057], which are evaluated in the present opinion FGE.217Rev3. The flavouring substance [FL-no: 10.057] did not induce gene mutations or numerical or structural chromosomal aberrations *in vitro*. Based on these data, the Panel concluded that the concern for genotoxicity is ruled out for [FL-no: 10.057]. Consequently, it can be evaluated through the Procedure.

© 2023 European Food Safety Authority. *EFSA Journal* published by Wiley-VCH GmbH on behalf of European Food Safety Authority.

Keywords: FGE.217, α,β -unsaturated ketones, lactones, flavouring substances, subgroup 4.1, FGE.19

Requestor: European Commission

Question number: EFSA-Q-2022-00537

Correspondence: fip@efsa.europa.eu

Panel members: Maged Younes, Gabriele Aquilina, Laurence Castle, Gisela Degen Karl-Heinz Engel, Paul J Fowler, Maria José Frutos Fernandez, Peter Fürst, Ursula Gundert-Remy, Rainer Gürtler, Trine Husøy, Melania Manco, Wim Mennes, Peter Moldeus, Sabina Passamonti, Romina Shah, Ine Waalkens-Berendsen and Matthew Wright.

Legal notice: The scientific output published implements EFSA's decision on the confidentiality requests submitted on specific items. As certain items have been awarded confidential status by EFSA they are consequently withheld from public disclosure by redaction.

Declarations of interest: If you wish to access the declaration of interests of any expert contributing to an EFSA scientific assessment, please contact interestmanagement@efsa.europa.eu.

Suggested citation: EFSA FAF Panel (EFSA Panel on Food Additives and Flavourings), Younes M, Aquilina G, Castle L, Degen G, Engel K-H, Fowler PJ, Frutos Fernandez MJ, Fürst P, Gundert-Remy U, Gürtler R, Husøy T, Manco M, Moldeus P, Passamonti S, Shah R, Waalkens-Berendsen I, Wright M, Benigni R, Bolognesi C, Chipman K, Cordelli E, Carfi M and Mennes W, 2023. Scientific Opinion on the flavouring Group Evaluation 217 Revision 3 (FGE.217Rev3): consideration of genotoxic potential for α , β -unsaturated ketones and precursors from chemical subgroup 4.1 of FGE.19: lactones. EFSA Journal 2023;21(4):7967, 16 pp. <https://doi.org/10.2903/j.efsa.2023.7967>

ISSN: 1831-4732

© 2023 European Food Safety Authority. *EFSA Journal* published by Wiley-VCH GmbH on behalf of European Food Safety Authority.

This is an open access article under the terms of the [Creative Commons Attribution-NoDerivs License](#), which permits use and distribution in any medium, provided the original work is properly cited and no modifications or adaptations are made.

EFSA may include images or other content for which it does not hold copyright. In such cases, EFSA indicates the copyright holder and users should seek permission to reproduce the content from the original source.



The EFSA Journal is a publication of the European Food Safety Authority, a European agency funded by the European Union.



Table of contents

Abstract.....	1
1. Introduction.....	4
1.1. Background and Terms of Reference as provided by the requestor.....	4
2. Data and methodologies.....	4
2.1. History of the evaluation of FGE.19 substances.....	4
2.2. History of the evaluation of the substances in subgroup 4.1.....	5
2.3. Presentation of the substances in flavouring group evaluation 217Rev3.....	7
3. Assessment.....	7
3.1. Additional data evaluated by the Panel in FGE.217Rev3.....	7
3.1.1. Bacterial reverse mutation assay with [FL-no: 10.057].....	7
3.1.2. <i>In vitro</i> mammalian cell micronucleus test with [FL no: 10.057].....	8
4. Discussion.....	8
5. Conclusions.....	8
6. Documentation as provided to EFSA.....	9
References.....	9
Abbreviations.....	10
Appendix A – Specification Summary of the Substances in the Flavouring Group Evaluation 217Rev3.....	11
Appendix B – Summary of Safety Evaluation by JECFA, applying the Procedure.....	12
Appendix C – (Q)SAR Predictions on Mutagenicity.....	15
Appendix D – Genotoxicity data on 3a,4,5,7a-tetrahydro-3,6-dimethylbenzofuran-2(3H)-one [FL-no: 10.057]	16